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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,522	01/15/2004	Chris E. Geswender	PD-03W114	6341

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Patent Docket Administration
RAYTHEON COMPANY
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EXAMINER

RADI, JOHN A

ART UNIT PAPER NUMBER

3641

DATE MAILED: 08/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/758,522	Applicant(s) GESWENDER ET AL.	
	Examiner John A. Radi	Art Unit 3641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) 14-42 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13, 43 and 45-47 is/are rejected.
- 7) ☒ Claim(s) 44 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/14/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-10, 13, 43, 45-47 are rejected under 35 U.S.C. 102(b) as being anticipated by Lipeles et al (US 6474593).

Lipeles teaches a method for correcting the range and deflection errors in an unguided spin stabilized (bullet is shot from a rifled gun which imparts spin – col 6 line 11) spinning projectile (12) comprising: determining deviations of the spinning projectile from a desired ballistic trajectory in a downrange and crossrange dimension (col 5 lines 10-17 – “active guidance and a control system that will counter the effects of errors or disturbances that would alter the path of the bullet from its ideal trajectory”); and intermittently deploying and stowing at least one aerodynamic surface on the spinning projectile (col 5 lines 37-67 – the intermittent deployment of flaps 36), that nudges the spinning projectile to it’s desired trajectory (col 5 line 17 – “the bullet will go where it was sent.”).

With respect to claims 2/3 and 46/47, wherein the surface is deployed and stowed in partial roll cycles of the projectile or quadrant thereof (col 6 lines 20-26 “The excitation will rotate from one strip to the next at the same speed, but in the opposite direction to the projectile spin, thereby creating a standing wave relative to the axis of flight”). With respect to claim 3, the period of time that a flap is deployed and stowed can be said to consist of multiple partial roll cycles, as a partial roll cycle is anything less

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than a full roll cycle – and therefore a deploy/stowed period may either be defined as a single partial roll cycle or as multiple partial roll cycles.

With respect to claims 4 and 5, slow and high spin rates are relative terms without further definition. The projectile of Lipeles can at once have a high spin rate with respect to some projectiles or a low spin rate with respect to other projectiles. With regard to the deployment/stowing of the deployment surfaces to nudge the projectile in a direction that is in the same plane or orthogonal to the average moment of the aerodynamic surface, the projectile of Lipeles is nudged to minimize precession and nutation, and to adjust for course corrections so that the projectile hits its target in the same way as applicant claims (see col 5 lines 1-17).

With respect to claim 6, launching the spin stabilized projectile on a ballistic trajectory according to a firing table for the same unguided projectile, the projectile of Lipeles is fired the same way as an unguided projectile would be fired (aiming at desired target) and the firing table consists of the conscious/unconscious aiming decisions that the user does to ensure that projectile will hit its intended target – taking into consideration wind, gravity bias, etc.

With respect to claim 7, wherein the aerodynamic surface has no effect on the ballistic trajectory when stowed (col 6 lines 9-13, does not interfere with the rifling of the barrel, therefore has no impact on aerodynamic trajectory when fully stowed).

With respect to claims 8 and 9, wherein the aerodynamic surface is deployed at a fixed angle of attack in a predetermined fully deployed position (fig 2), and see col 5 lines 37-67 regarding the deployment and retraction.

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With respect to claim 10, the deployment and determination of deviations is continuous to target (col 5 lines 10-17).

With respect to claim 13, wherein the aerodynamic surface is deployed and stowed by energizing a voice coil, the examiner interprets a voice coil as an electrically operated actuator, and the stowing/deploying of the flaps of the Lipeles projectile also operate based on an electrical actuator (col 5 lines 37-67).

With respect to claim 43, centripetal spring offsets centrifugal force acting on the aerodynamic surface – see col 5 lines 37-67, wherein the residual stress of the material (inherent spring) causes the aerodynamic surface to unfurl and go back to its normal stowed position when the electrical charge is removed. With regard to the deployment spring,

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lipeles (US 6474593) in view of applicant's specification. Applicant discloses that the method of cross range and down range correctors are well known in the art in order

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to ensure that a projectile is on target. The projectile of Lipeles uses a course correction algorithm to deploy/stow the aerodynamic surfaces to ensure the projectile stays on course. The motivation for altering Lipeles with cross range and down range correctors would be to use a course correcting algorithm suitable to the task at hand such as hitting a target that is below the trajectory of the projectile as opposed to in front of it (as with a missile as opposed to a bullet). While Lipeles is drawn to a method of correcting the trajectory of a bullet, it can be scaled for use on a larger projectile such as a missile and Lipeles suggests as much (col 7 col 16-27). Furthermore, in a larger projectile, the method taught by Lipeles wouldn't be constrained by space and could use more complicated course correcting circuitry. Therefore it would have been obvious to one having skill in the art at the time of invention to use the course correcting method taught by Lipeles in a projectile with down and cross range correcting algorithms to ensure the projectile stays on target.

Allowable Subject Matter

Claim 44 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

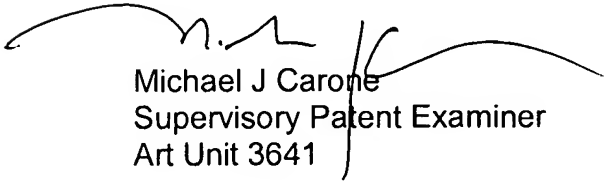
Any inquiry concerning this communication or earlier communications from the examiner should be directed to John A. Radi whose telephone number is 571-272-5883. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael J. Carone can be reached on 571-272-6873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

John A Radi
Patent Examiner
Art Unit 3641



Michael J Carone
Supervisory Patent Examiner
Art Unit 3641